

## **BOTTLE CAP ASSEMBLY**

### **FIELD OF THE INVENTION**

The present invention relates to a bottle cap assembly which includes a operation member movably mounted to the spout member and connected to the cap which is moved upward by pulling the operation member to open the cap assembly.

### **BACKGROUND OF THE INVENTION**

A conventional water or juice bottle shown in Fig. 1 generally includes cap assembly includes a cap 1 which is movably mounted to a spout member 2 threadedly mounted to the opening of the bottle. A flange 12 extends outward from a top of the cap 1 and a stepped hole 10 is defined through the cap 1. A protrusion 13 extends inward from the inner periphery of the stepped hole 10 so as to be engaged with an annular ridge 20 and received in a groove 21 located beneath the ridge 20 on the spout member 2. The protrusion 13 is allowed to move over the annular ridge 20 when pulling the cap 1 such that a gap is defined between the cap 1 and the seal member 22 on the spout member 1 and water or juice may flow through the gap. When the cap 1 is pushed back to its close position, the gap is sealed. Nevertheless, the user has to hold the flange 12 which is a very short flange and pull the cap 1 upward to enjoy the water or juice in the bottle. This requires a certain level of muscle force to hold the cap 1 and the flange 12. For some children or seniors, the conventional cap 1 is difficult to operate.

The present invention intends to provide a cap assembly that includes an operation member mounted to the spout member and connected to the cap so that the user conveniently and easily holds the operation member to pull the cap upward.

## **SUMMARY OF THE INVENTION**

The present invention relates to a bottle cap assembly that comprises a spout member having a first end connected to a spout of a bottle and a shank is connected to the first end. A passage is defined through the spout member and a seal member is located in an opening in a second end opposite to the first end of the spout member. An annular ridge extends outward from an outer periphery of the second end of the shank and a groove is defined in the outer periphery of the second end of the shank and located beneath the annular ridge.

A cap is movably mounted to the second end of the shank and has a hole defined therethrough which has a stepped inner periphery. The seal member is disengageably engaged with the hole. An operation member has a through hole defined therethrough and is movably mounted to the shank. The cap is engaged with the operation member such that when pulling the operation member, the cap is pulled away from the sealing member.

The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is a cross sectional view to show a conventional cap assembly mounted on a bottle;

Fig. 2 is an exploded view to show the cap assembly of the present invention, the bottle and the coat of the bottle;

Fig. 3 is a cross sectional view to show the cap assembly of the present invention mounted to the bottle in the coat of the bottle, and

Fig. 4 is a cross sectional view to show that a user pulls the cap assembly of the present invention mounted to the bottle.

## 5        **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to Figs. 2 and 3, the bottle cap assembly of the present invention comprises a spout member 3 having a first end 30 which has a threaded inner periphery 301 that is threadedly connected to a spout 60 of a bottle 6. A shank 31 is connected to the first end 30 and a passage is defined through the spout member 3. A  
10    seal member 311 is located in an opening 310 in a second end opposite to the first end 30 of the spout member 3 so as to form an annular opening between an inner periphery of the opening 310 and the seal member 311. An annular ridge 312 extends outward from an outer periphery of the second end of the shank 31 and a groove 313 is defined in the outer periphery of the second end of the shank 31 and  
15    located beneath the annular ridge 312.

A cap 4 is movably mounted to the second end of the shank 31 and has a hole 40 defined therethrough which has a stepped inner periphery such that the seal member 311 is disengageably engaged with the hole 40. A protrusion 42 extends from an inner periphery of the cap 4 and is disengageably engaged with the groove  
20    313 when the cap 4 is in close position. The protrusion 42 is able to move over the annular ridge 312 when pulling the cap 4 to the open position. A flange 41 extends radially outward from the cap 4.

An operation member 5 has a through hole 50 defined therethrough and is movably mounted to the shank 31 which is engaged with the through hole 50. An end of the cap 4 is supported on an annular flange 500 extending from an inner periphery of the through hole 50 such that when pulling the operation member 5, the cap 4 is pulled away from the sealing member 311 to its open position. The operation member 5 has a volume which is larger than that of the cap 4 so that the user can easily hold the operation member 5.

The bottle 6 is inserted into a coat 70 via an open bottom of the coat 70 and the spout 60 of the bottle 6 extends out from the opening 701 of the coat 70. A strap 73 is connected to the coat 70. The open bottom of the coat 70 can be closed by a bottom cover 71.

The operation member 5 can be decorated to desired shapes that attract the attentions of the users. The operation member 5 is large enough that the users can easily hold it to pull the cap 4 upwardly.

While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.